

CLEAN AIR ACT SECTION 112(r) INSPECTION REPORT

Water Treatment Specialists, Inc.

Catano, Puerto Rico

GENERAL INFORMATION

Stationary Source	Water Treatment Specialists, Inc.
Date of Inspection	January 21, 2009
USEPA Inspector	Ellen Banner, – USEPA, REGION II (Edison, NJ) Carlos Rivera, USEPA – Region II, Caribbean Office, Enforcement
Contract Auditor	Neil Mulvey, Sullivan Group (Subcontractor)
Description of Activities	<ul style="list-style-type: none">• Opening meeting with facility representative.• Program audit.• Closing meeting with facility representatives. Program audit consisted of the following activities: <ol style="list-style-type: none">1. Document review.2. Field verification.3. Personnel interviews

STATIONARY SOURCE INFORMATION

EPA Facility ID #	1000 0013 5114
Date of Latest Submission (used for RMP inspection)	Receipt Date: August 29, 2008 (Re-submission) Anniversary Date: August 26, 2013
Facility Location	P. R. Road 896, Km 2.0 Catano, PR 00962 Tel. (787) 788-8868
Number of Employees	<i>RMP*Submit</i> states 13 employees (per RMP registration). Facility reported 11 employees.

Description of Surrounding Area	The facility is located in a commercial / industrial section of Catano surrounded on all sides by industrial / commercial businesses. The site is approximately 3 acres in size.
Participants	Participants included representatives from: Ellen Banner, USEPA – Region II, Edison, NJ Carlos Rivera, USEPA – Region II, Caribbean Office Neil P. Mulvey, USEPA Contractor – Sullivan Group Jorge Saez, General Manager – Water Treatment Specialists, Inc.* Emilio Cruz, Plant Manager – Water Treatment Specialists, Inc. Isahel Cavo, Accountant – Water Treatment Specialists, Inc. * Lead representative for Water Treatment Specialists

REGISTRATION INFORMATION

Process ID #	76314 – Aqua Ammonia Production
Program Level (as reported in RMP)	Program 3
Process Chemicals	Anhydrous ammonia @ 42,600-lbs. Ammonia (conc. 20% or greater) @ 89,250-lbs.
NAICS Code	325188 (All Other Basic Inorganic Chemical Manufacturing)

GENERAL COMMENTS

Operations include the regeneration of resins for deionization of waters, commercial sales of deionizing units, and the manufacturing of aqueous ammonia chemical solutions. The facility sells water treatment products and services under the name of Culligan. The raw materials used for the regeneration of resins for water deionizing processes includes caustic soda (50%) and hydrochloric acid (37%).

Anhydrous ammonia is received in 5,200-gallon isotainers and unloaded into a 10,000-gallon storage tank (Tank A). The facility receives approximately one isotainer every

four to five weeks. The maximum fill level in the anhydrous ammonia storage tank is 85%.

Aqueous ammonia is produced in a batch process by mixing anhydrous ammonia from Tank A with deionized water in an in-line reactor. The heat of reaction is removed in heat exchangers and 29% aqueous ammonia is transferred and stored in a 6,000-gallon storage tank (Tank B). Lower grade aqueous ammonia is produced by transferring 29% aqueous ammonia to an 8,000-gallon tank (Tank C) where it is diluted with water to produce 24% and 25% aqueous ammonia.

Aqueous ammonia is transferred and shipped to customers in tank trucks, isotainers, or 55-gallon drums. The facility estimates approximately 13,000-gallons of 29% aqueous ammonia is shipped per month.

The facility operates eight hours per day, five days per week (M – F).

RMP DOCUMENTATION

The facility's written RMP procedures are contained in individually written documents. Facility management demonstrated a good understanding of the RMP regulations and the on-site RMP documents and procedures.

Management System [40 CFR 68.15] & Registration

The General Manager of Water Treatment Specialist, Mr. Jorge Saez, is responsible for implementation of the RMP program.

Section B: Hazard Assessment [40 CFR 68.20 – 68.42]

According to the worst case and alternate case information submitted to EPA for the two RMP regulated substances – anhydrous ammonia and ammonia (conc. 20% or greater) - worst case and alternate case scenarios were performed for anhydrous ammonia, but only an alternate case scenario was done for the aqueous ammonia process. In addition, the population that EPA calculated as being included in the distance to endpoint was 4 times the amount calculated by Water Treatment Specialists. Although some variability is seen when different sources of population data are used, this discrepancy is large enough to warrant a re-calculation. The facility should perform a worst case scenario for the aqueous ammonia process – using current census data. In addition, the facility should re-calculate the population potentially impacted for the other scenarios (aqueous ammonia alternate case and anhydrous worst and alternate cases) and re-submit the facility's RMP to the EPA RMP Reporting Center. Further information on re-submitting an RMP is available at:

http://www.epa.gov/oem/content/rmp/rmp_correct.htm

Section C:
Process Safety Information (PSI) [40 CFR 68.65]

The facility has Material Safety Data Sheets (MSDSs) available for the RMP regulated materials and a block flow diagram of the process.

Applicable PSI information related to the technology of the process that was not available for review includes:

- Safe upper and lower operating limits
- An evaluation of the consequences of deviation

There was no documentation available regarding whether existing equipment complies with recognized and generally accepted good engineering practices.

Process Hazard Analysis (PHA) [40 CFR 68.67]

Three PHA study reports were available for review:

- May 14, 1999
- May 14, 2004
- August 15, 2008

The PHAs utilized the HAZOP method. The HAZOP team included employees with knowledgeable of the process, including an operator. The report includes documentation of cause, consequence, safeguards, and recommendations where deemed necessary. The most recent PHA identified 17 recommendations. While some of the recommendations appeared to be resolved, there was no documentation regarding resolution of these recommendations.

Standard Operating Procedures (SOPs) [40 CFR 68.69]

The facility has a written procedure, Standard Operating Procedures for Manufacturing Aqueous Ammonia, dated 5/17/04. This SOP includes:

- Step procedures for producing aqueous ammonia
- Step procedures for filling 55-gallon drum of aqueous ammonia
- Step procedures for loading tank trucks of aqueous ammonia
- Step procedures for unloading bulk anhydrous ammonia to storage tank

The operating procedures did not include a description of the acceptable operating limits, consequences of deviating from operating limits or steps required to correct or avoid deviation.

There was no record of annual certification of the operating procedures. The facility does have a written lockout/tagout procedure, dated 6/9/99.

Training [40 CFR 68.71]

Water Treatment Specialists perform annual HAZCOM refresher trainings. During the inspection, training records for one ammonia plant operator, the Plant Manager and a resin operator (who may fill in for ammonia plant operator) were reviewed. Documentation included a list of topics covered, date of training, and signature of trainee and trainer. Documentation includes a statement that the trainee understood the training received.

Mechanical Integrity [40 CFR 68.73]

An outside contractor conducts annual external inspections of the two aqueous ammonia storage tanks and the anhydrous ammonia storage tank. Documentation of this annual inspection includes a certification and identification of findings / recommended actions as necessary.

There was no formal record of the established inspection and testing schedule for other equipment and systems used in the process such as transfer pumps, flow meters, transfer lines, the heat exchangers and check valves.

Management of Change (MOC) [40 CFR 68.75] & Pre-Startup Review (PSR) [40 CFR 68.77]

The facility has a written MOC procedure dated 6/9/99. Facility management reported that there have been no changes to the process in last 27 years. They reported only replacements in kind. Therefore, there was no MOC or PSR documentation available for review.

Compliance Audits [40 CFR 68.79]

There were no RMP compliance audits available for review.

Incident Investigation [40 CFR 68.81]

Written procedures for investigating releases of hazardous materials (including anhydrous ammonia and aqueous ammonia), including documenting investigations, are included in the facility's SPCC Plan (Rev. 4; 5/16/08). Facility management reported that there have been no releases of anhydrous ammonia or aqueous ammonia in the last five-years.

Section D: **Employee Participation [40 CFR 68.83]**

There is ample evidence of employee participation in the initial PHA study and throughout the documented HAZCOM training. It was apparent that employees have access to facility management and can openly discuss aspects of RMP with management.

Section E:
Hot Work Permit [40 CFR 68.85]

Hot work is not performed on or near the covered process.

Section F:
Contractor Safety [40 CFR 68.87]

The facility does utilize contractors who perform work on or near the RMP regulated process (e.g., contractor who performs inspections of the anhydrous ammonia and aqueous ammonia storage tanks). There was documentation of contractor orientation prior to conducting on-site work and attendance at annual HAZCOM training. The contractors used by Water Treatment Specialists have been evaluated after their work is performed.

Section G:
Emergency Response [40 CFR 68.90 – 68.95]

The facility has a written emergency response plan which includes notification procedures for local response agencies and for the public. Facility personnel are not designated ‘first responders’ in the case of fire or chemical accident. In the event of an emergency, the Catano Fire Department would be called and Water Treatment Specialists has agreements in place for response and clean-up assistance from an adjacent facility - Mays Ochoa and a clean-up contractor -Clean Harbors.

In September of each year the facility holds HazCom training in which all plant employees, as well as contractors who make ammonia deliveries, participate.

RECOMMENDATIONS

- There are no ammonia detectors located anywhere in the facility. **Given the quantities of anhydrous ammonia and aqueous ammonia and the possibility for leaks, particularly during times when the facility is not staffed, the facility should consider installing ammonia detectors that can be monitored 24/7.**
- Anhydrous ammonia and water are mixed and react in an in-line reactor located inside a wooden shed in the operating area. **Since this could allow for the release of anhydrous ammonia in an enclosed space, and therefore presents an explosion hazard if the LEL is exceeded, the facility should re-evaluate the electrical hazard classification of equipment inside the enclosed space or consider installing an ammonia detector and emergency ventilation.**

- The level gauge on the anhydrous ammonia storage tank operates by opening valve(s), allowing anhydrous ammonia to escape, closing the valve, and then a level reading. This technology is outdated and allows for an anhydrous ammonia release each time a level reading is taken. **The facility should consider installing a level gauge consistent with current good design and good engineering practices.**
- A sample valve on the aqueous ammonia storage tank is not capped or plugged. This presents the potential for an ammonia release if a manual valve is inadvertently opened. **The facility should consider installing caps / plugs on all open ended lines / valves, consistent with good engineering practices.**
- The pressure gauge on the aqueous ammonia storage tank utilizes plastic tubing and requires manual valve(s) to be opened in order to read tank pressure. This is outdated technology. **The facility should consider installing a permanent tank mounted level gauge (eliminating the need for plastic tubing) that will provide continuous pressure readings (without the need to open valves), consistent with current good design and good engineering practices.**
- During a discussion of how facility-wide alarms are activated, facility management explained that alarms must be manually activated via a security pad located in the office lobby (rather than in the process area). The office lobby is separated from the process area by doors, which could at times be locked, thereby hindering access to the alarm. **The facility should consider providing a means to activate facility-wide alarms from the processing area to ensure they can be quickly and safely activated in an emergency as needed. Emergency alarm activation buttons / pads should be so labeled.**
- The last two PHA reports, dated 5/14/04 and 8/15/08, were very similar to the 5/14/99 study. It is recommended that the format of the next PHA be modified in some way to allow for a new approach which may elicit different questions and productive discussion. For example, the PHA could be strengthened by the inclusion of some known site hazards – such as the loss of cooling water (i.e. heat exchanger failing) during aqueous ammonia production.
- During the inspection it was noted that the facility employs a wind sock so that the wind direction can be easily observed. However, it was also noted that if the wind sock were placed in a more elevated location, the wind direction could be observed more easily and from a wider variety of plant locations.

FINDINGS

Hazard Assessment [40 CFR 68.20 – 68.42]

- The worst case scenario for aqueous ammonia, if performed, was not submitted to EPA - only an alternate case scenario was received. **The facility should perform a worst case scenario for the aqueous ammonia process – using current census data. In addition, the facility should re-calculate the population potentially impacted for the other scenarios (aqueous ammonia alternate case and anhydrous worst and alternate cases) and re-submit the facility's RMP to the EPA RMP Reporting Center, as required by 40 CFR 68.25(a)(2)(i) and 68.30(c).**

Process Safety Information (PSI) [40 CFR 68.65]

- Certain PSI information related to the technology of the process was not available for review, including safe upper and lower operating limits, and an evaluation of the consequences of deviation from established limits. **The facility should compile necessary PSI related to the technology of the process as required by 40 CFR 68.65(c)(1)(iv).**
- There was no documentation available regarding whether the existing process equipment complies with recognized and generally accepted good engineering practices. **The facility must document that equipment complies with recognized and generally accepted good engineering practices as required by 40 CFR 68.65(d)(2).**

Process Hazard Analysis (PHA) [40 CFR 68.67]

- The most recent PHA identified 17 recommendations. While some of the recommendations appeared to be resolved, there was no documentation regarding resolution of these recommendations. **The facility should establish a system to promptly address the PHA team's findings to assure that the recommendations are resolved in a timely manner, as required by 40 CFR 68.67 (f).**

Standard Operating Procedures (SOPs) [40 CFR 68.69]

- The operating procedures did not include a description of the acceptable operating limits, consequences of deviating from operating limits, or steps required to correct or avoid deviation. **The facility should revise written SOPs to include a description of acceptable operating limits, consequences of deviating from operating limits, and steps required to correct or avoid deviation, as required by 40 CFR 68.69(a)(2)(i) & (ii).**

- There was no record of annual certification of SOPs. **The facility should annually certify operating procedures to confirm that they are current and accurate, in accordance with 40 CFR 68.69(c).**

Mechanical Integrity [40 CFR 68.73]

- The facility has not documented inspections and test performed on process equipment, such as transfer pumps, flow meters, transfer lines, the heat exchangers, and check valves. **The facility should document inspections and tests of RMP regulated equipment consistent with accepted good engineering practices, as required by 40 CFR 68.73(d)(4).**

Compliance Audits [40 CFR 68.79]

- There were no compliance audits available for review. **The facility should conduct an RMP compliance audit to evaluate compliance with the provisions of the RMP program in place on site at least every three years, as required by 40 CFR 68.79.**